

THE INVENTION CLAIMED IS:

1. A multi-layered composite metal sheet having improved uniform thermal transfer properties, said composite sheet comprising a plurality of roll bonded metal layers including an inner layer of a metal having a coefficient of thermal conductivity lower than adjacent metal layers whereby said inner layer retards heat flow in a transverse direction to cause said inner layer to distribute heat in a lateral direction.
2. The composite sheet of claim 1 wherein the metal having the lower thermal conductivity is a metal selected from the group consisting of titanium, titanium alloy and stainless steel.
3. A cooking vessel or griddle plate comprising a multi-layer bonded composite including an inner core layer of titanium or titanium alloy, a layer of pure aluminum or Alclad aluminum bonded to opposed sides of the titanium core layer, a layer of stainless steel bonded to a first of the pure aluminum or Alclad aluminum layers to define a cook surface and a layer of one of an austenitic stainless steel or a ferromagnetic material bonded to a second of the pure aluminum or Alclad aluminum layers to define an outer layer adjacent to a heating source.
4. Cookware formed from a multi-layered composite sheet having improved uniform thermal transfer properties, said composite sheet comprising a plurality of roll bonded metal layers including an inner layer of a metal having a coefficient of thermal conductivity lower than adjacent metal layers whereby said inner layer retards heat flow in a transverse direction to cause said inner layer to distribute heat in a lateral direction.
5. An iron having a sole plate made from a multi-layered composite sheet or plate having improved uniform thermal transfer properties, said composite sheet comprising a plurality of roll bonded metal layers including an inner layer of a metal having a coefficient of thermal conductivity lower than adjacent metal layers whereby said inner layer retards heat flow in a transverse direction to cause said inner layer to distribute heat in a lateral direction.

6. A method of making a multi-layered composite metal sheet comprising the steps of:

- (a) providing a plurality of metal sheets, wherein one of said metal sheets has a coefficient of thermal conductivity lower than the other metal sheets;
- (b) preparing said metal sheets by removing an oxide surface layer from surfaces thereof;
- (c) stacking said metal sheets in an ordered array such that adjacent sheets having surfaces prepared from step (b) are facing each other and wherein the metal sheet having the lower coefficient of thermal conductivity forms an inner layer of the ordered array;
- (d) heating said ordered array to a rolling temperature; and
- (e) rolling said ordered array to a desired thickness.

7. The method of claim 6 wherein the metal sheets provided in step (a) at least are aluminum or Alclad aluminum and stainless steel, and wherein the metal sheet of lower thermal conductivity is one of titanium, titanium alloy or stainless steel.

8. The method of claim 7 wherein the metal of lower thermal conductivity is titanium or titanium alloy.

9. The method of claim 8 wherein the ordered array of stacking step (c) comprises: a first layer of stainless steel facing a first layer of aluminum or Alclad aluminum, a layer of titanium or titanium alloy having a first side facing the first layer of aluminum or Alclad aluminum, a second layer of aluminum or Alclad aluminum facing a second side of the layer of titanium or titanium alloy, and a second layer of stainless steel facing the second layer of aluminum or Alclad aluminum.

10. The method of claim 9 wherein the heating step (d) comprises heating the ordered array in a furnace or oven containing atmospheric oxygen to the rolling temperature of between 550° to 600°F.

11. A method of making cookware comprising the steps (a)-(e) of claim 6, and further including the step of

(f) forming the multi-layered composite sheet into a desired configuration for cookware.

12. The method of claim 11, including the step of applying a non-stick layer to a cook surface of the cookware.